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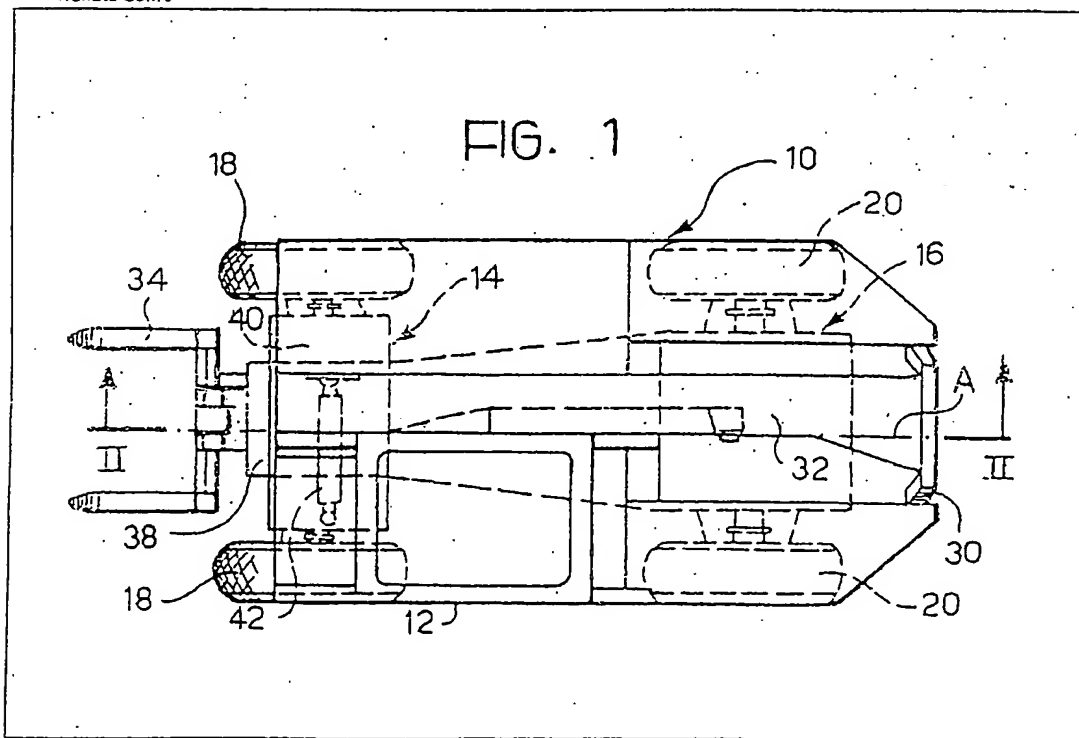
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(54) Wheeled vehicle with chassis  
 movable relative to one of the axles

(57) A wheeled vehicle comprises a  
 chassis (12), which carries a working  
 implement (34), and a pair of spaced

apart axles (14, 16) carrying  
 respective wheels (18, 20). The  
 chassis (12) is movable relative to one  
 of the axles (14) in a direction  
 substantially parallel to this axle (14)  
 under the action of a hydraulic ram  
 (42).

The arrangement thereby provides  
 greater functional efficiency with  
 greater operational flexibility for the  
 vehicle as compared with  
 conventional vehicles of the same  
 type.



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FIG. 1

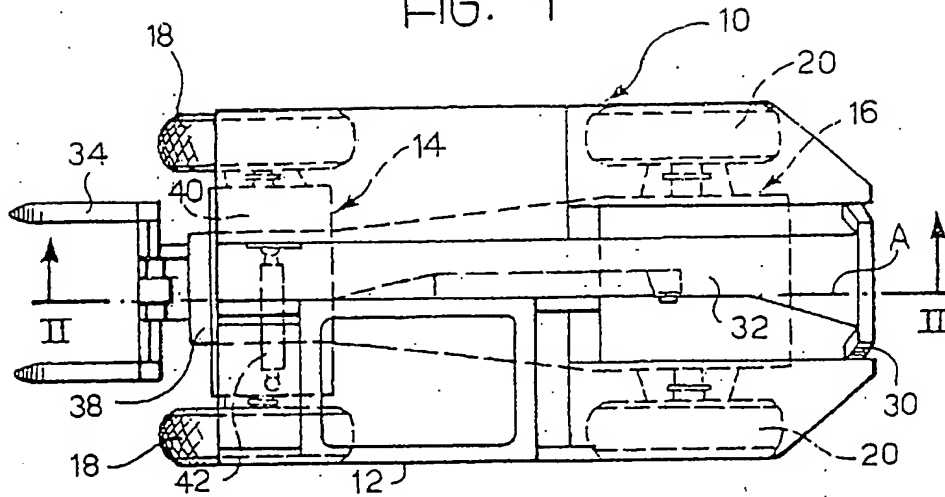


FIG. 2

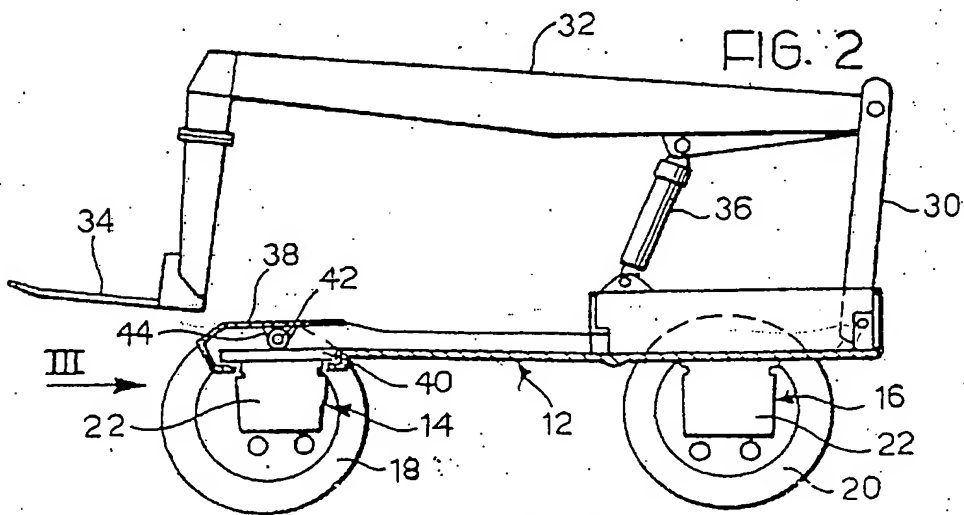
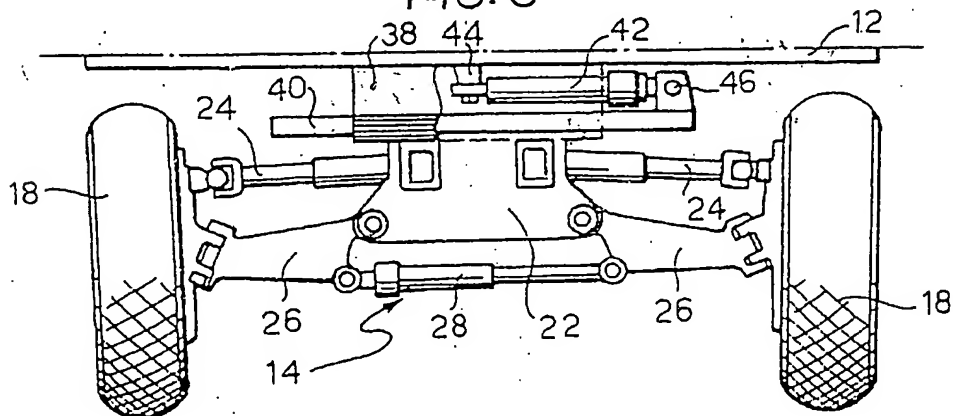


FIG. 3



## SPECIFICATION

Wheeled vehicle with chassis movable relative to one of the axles

The present invention relates generally to vehicles of the type having a chassis or supporting structure and a pair of spaced apart axles carrying respective wheels. More particularly the invention concerns vehicles of this type in which the chassis carries a working member or implement such as a load transporting device and/or excavating tool, for example hoists, lift trucks and the like as used on construction sites.

The object of the invention is to provide a vehicle of the type specified above which, compared with conventional vehicles of the same type, has greater functional efficiency together with greater operational flexibility.

In order to achieve this object, the invention provides a vehicle of the aforesaid type characterised in that the chassis is connected to one of the axles so as to be slidable in a direction substantially parallel to this axle, and in that means are provided for effecting such sliding movement of the chassis relative to the said axle.

Generally, when the vehicle is provided with a working member or implement operating close to one end of the chassis, the axle relative to which the chassis is movable will be that located at that end of the chassis close to which the said working member or implement operates.

By virtue of this characteristic, the vehicle is able to operate efficiently even in limited working spaces, that is, in all situations in which the normal manoeuvring of the vehicle can be difficult, or even impossible, since the possibility of transverse movement of the chassis allows the operative range of the working member or implement in a direction transverse the longitudinal axis of the vehicle to be considerably increased.

The chassis preferably has a guide part in correspondence with one of the axles, this axle having a central plate-shaped connecting member which is slidably engaged by the guide part of the chassis, an actuator being provided for effecting relative sliding movement between the guide part and the connecting member.

The invention will now be further described, by way of non-limiting example, with reference to the appended drawings, in which:

Figure 1 is a schematic plan view from above of a vehicle according to one embodiment of the invention;

Figure 2 is a longitudinal sectional view taken on line II—II of Figure 1, and

Figure 3 is a partially broken away front elevational view taken on arrow III of Figure 2.

In the drawings, a vehicle intended for use as a machine for work on construction sites is generally indicated 10. In the embodiment illustrated, the vehicle 10 is constituted by a forklift truck. It should, however, be noted that characteristics of the invention which will be described below also apply generally to vehicles of

different types intended for different purposes, such as, for example, loaders, excavators and the like.

The vehicle 10 comprises essentially a chassis or supporting structure 12 provided adjacent its opposite ends with a front and rear axle 14 and 16 for the front wheels 18 and the rear wheels 20 respectively.

Each of the axles 14, 16 includes a respective differential, generally indicated 22, from which two half shafts 24 extend and to the housing of which are attached two wishbones 26 interconnected by telescopic shock absorbers 28.

To the rear end of the chassis 12, that is, that end adjacent the rear axle 16, there is fixed a substantially vertical support structure 30. A generally L-shaped lifting arm 32 is articulated to the top of the support structure 30 and carries at its front end a fork platform 34 projecting forwardly from the chassis 12. Movement of the lifting arm 32 is controlled by means of one or more hydraulic actuators 36.

According to the invention, the chassis 12 of the vehicle 10 is movable relative to the front axle 14, that is, the axle adjacent the working zone of the fork platform 34, in a direction substantially parallel to this axle; that is, transverse the longitudinal axis of the vehicle 10, indicated by A in Figure 1. This characteristic, which advantageously allows increased operational flexibility of the fork platform 34, is achieved by virtue of the fact that the front end of the chassis 12 has a hollow transverse guide part 38 which slidably engages a central plate-shaped connecting member 40 rigidly fixed to the upper part of the housing of the differential 22 of the front axle 14.

Movement of the guide part 38 relative to the connecting plate 40 is achieved by means of a hydraulic actuator ram 42 having one end connected to an attachment lug 44 fixed to the chassis 12 and its other end connected to an attachment lug 46 fixed to one end of the connecting plate 40.

As is clearly seen in the drawings, the actuator ram 42 extends transverse the longitudinal axis A of the vehicle 10, within the guide part 38.

In the embodiment illustrated in the drawings, the rear axle 16 is rigidly fixed, by means of the housing of its differential 22, to the chassis 12. In this case when the actuator 42 is operated to effect translational movement of the chassis 12 relative to the front axle 14, the rear axle 16 moves rigidly with the chassis 12, while the wheels 20 rotate or slide on the ground.

It should also be noted that the mounting of the chassis 12 on the rear axle 16 could be similar to that already described for the front axle 14, should this be necessitated by the particular working requirements of the vehicle 10.

## CLAIMS

1. A vehicle comprising a chassis or support structure which carries a working member or implement and a pair of spaced apart axles

carrying respective wheels, in which the chassis is connected to one of the axles so as to be slidable in a direction substantially parallel to this axle and in which means are provided for effecting such sliding movement of the chassis relative to the said axle.

2. A vehicle according to Claim 1, in which the chassis has a guide part in correspondence with one of the axles, which axle has a central plate-shaped connecting member slidably engaged by the guide part of the chassis, and in which an actuator is provided for effecting relative sliding movement between the guide part and the connecting member.

3. A vehicle according to Claim 2, in which the actuator comprises a fluid pressure ram extending

parallel to the guide part of the chassis.

4. A vehicle according to Claim 3, in which the guide part of the chassis is hollow and in which the said fluid pressure ram is housed in the hollow interior of the guide part.

5. A vehicle according to any one of the preceding claims, in which the working implement acts adjacent one end of the chassis, and in which the axle relative to which the chassis is movable is that which is disposed adjacent the end of the chassis close to which the said working member or implement works.

6. A wheeled vehicle substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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